

STATE OF SOUTH CAROLINA
BEFORE THE PUBLIC SERVICE COMMISSION

Docket No. 2019-185-E

South Carolina Energy Freedom)	
Act (H.3659) Proceeding to)	
Establish Duke Energy)	
Carolinas, LLC's)	
Standard Offer, Avoided Cost)	INTERVENOR, SOUTH CAROLINA
Methodologies, Form Contract)	SOLAR BUSINESS ALLIANCE, INC.'S
Power Purchase Agreements,)	SECOND INTERROGATORIES AND
Commitment to Sell Forms,)	REQUESTS FOR PRODUCTION
and Any Other Terms or)	
Conditions Necessary)	
(Includes Small Power Producers)	
as Defined in 16 United States)	
Code 796, as Amended) - S.C. Code))	
Ann. Section 58-41-20(A))	

Intervenor South Carolina Solar Business Alliance, Inc. ("SCSBA"), pursuant to Reg. 103-833 and S.C. Code Ann. § 58-41-20(J), which requires that "Each electrical utility's avoided cost filing must be reasonably transparent so that underlying assumptions, data, and results can be independently reviewed and verified by the parties and the commission," hereby serves Duke Energy Carolinas, LLC ("DEC") with SCSBA's Second Interrogatories and Requests for Production, to be answered separately within twenty (20) days from the date of service hereof. Please set forth DEC's answers separately, after restating the question.

These Second Interrogatories and Request for Production shall be deemed continuing, and if complete production to any of them is not presently available, and the information becomes available before a final hearing, supplemental production is required at such time as this information becomes available to DEC.

INSTRUCTIONS

1. All information shall be provided to the undersigned in the format as requested.
2. All responses to the below Interrogatories and Requests for Production shall be labeled using the same numbers as used herein.
3. If the requested information is found in other places or in other exhibits, reference shall not be made to those, but, instead, the information shall be reproduced and placed in the responses to these Requests for Production in the appropriate sequence.
4. Any inquiries or communication relating to questions concerning clarifications of the data requested below shall be directed to the undersigned.
5. All exhibits shall be reduced to an 8 1/2" x 11" format.
6. Each Request shall be reproduced at the beginning of the response thereto.
7. DEC shall provide the undersigned with responses to these Interrogatories and Requests for Production as soon as possible but **not later than twenty (20) days from the date of service hereof.**
8. If the response to any Requests for Production is that the information requested is not currently available, please state when the information requested will become available.
9. These Interrogatories and Requests for Production shall be deemed continuing so as to require DEC to supplement or amend its responses as any additional information becomes available up to and through the date of trial.
10. If a privilege not to answer a Request is claimed, identify each matter as to which the privilege is claimed, the nature of the privilege, and the legal and factual basis for each such claim.

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11. If a refusal to respond to a Request is based on the grounds that same would be unduly burdensome, identify the number and nature of documents needed to be searched, the location of the documents, and the number of hours and costs required to conduct the search.

12. Answer each Request on the basis of the entire knowledge of DEC, including information in the possession of DEC or its consultants, representatives, agents, experts, operating divisions, business divisions, assigns, partners, and attorneys, if any.

13. If any Request cannot be answered in full, respond to the extent possible and specify the reasons for DEC's inability to produce.

14. Please provide copies of the information responsive to this request in native electronic working format with all data and formulas intact.

DEFINITIONS

As used herein, the following terms shall have the meaning and be interpreted as set forth below:

1. "You" or "your" shall refer to DEC, or affiliate, any agent, employee, official, or consultant thereof.

2. The conjunctions "and" and "or" shall be interpreted in each and every instance as meaning "and/or" and shall in neither instance be interpreted disjunctively to exclude any document or information otherwise within the scope of any description or request made herein.

3. "Avoided Cost," "Avoided Cost Rates," "Avoided Cost Methodology," and "Avoided Cost Calculations" shall have the meanings assigned to them under S.C. Code Ann. §§ 58-41-10 and 58-41-20, and shall include without limitation avoided energy, avoided capacity, and the cost of ancillary services produced or consumed by small power producers as provided in S.C. Code Ann. § 58-41-20(B)(3).

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4. “Document” shall mean all originals of any nature whatsoever, identical copies and all non-identical copies thereof, pertaining to any medium upon which intelligence or information is recorded in DEC’s possession, custody or control, or other tangible objects regardless of where located; including, without limiting the generality of foregoing, punch cards, print-out sheets, movie film, slides, photographs, records, work papers, source documents, microfilm, notes, letters, memoranda, ledgers, worksheets, books, magazines, notebooks, diaries, calendars, appointment book registers, charts, cable, papers, agreements, contracts, purchase orders, acknowledgements, invoices, authorizations, budgets, analyses, projections, transcripts, minutes of meeting of any kind, correspondence, telegrams, drafts, data processing disks or tapes, or computer-produced interpretations thereof, instructions, announcements, schedules, and price list. Media includes data on computers, laptop computers, netbook computers, cell phones, telephones, PDA’s, Blackberry’s or Blackberry type devices, smart phones, external hard drives and flash drives or storage devices of any type, of DEC and specifically includes the computer and or laptop computers utilized by Representatives of DEC. Media means media, as broadly as the term “media” may be defined, that contains electronic data, as to the Interaction between SCSBA and DEC.

5. “Identify” or “identity” used with reference to an individual means to state his or her full name, present or last known address, present or last known position and business affiliation, and employer, title, and position at the same time in question.

6. “Identify” or “identity” used with reference to a writing means to state the date, author, type of document (e.g. letter, memorandum, telegram, chart, note, application, etc.) or other means of identification, and its present location or custodian. If any such document is no longer in DEC’s possession or subject to their control, state what disposition was made of the document(s).

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7. All references to the singular contained herein shall be deemed to include the appropriate plural number and all references to the plural shall be deemed to include the singular. All references to the masculine gender contained herein shall be deemed to include the appropriate feminine and neuter genders.

INTERROGATORIES

1. With respect to the Avoided Energy Cost calculations shown on page 3 of Snider DEC Exhibit 1 and Snider DEP Exhibit 1 (confidential):
 - a. Please provide the derivation of the Avoided Energy Costs for each of years 2020-2029 and for each of the nine time periods shown.
 - b. Please provide an 8760 hourly breakdown of the Avoided Energy Costs for each hour in each year.
2. With respect to the statement on page 6 of Snider DEC/DEP Exhibit 1 (confidential) that the Seasonal Allocation is “Based on LOLH”:
 - a. Please provide an 8760 hourly breakdown of the Loss of Load Hours and Loss of Load Probability for each hour in the year used to determine the Seasonal Allocations.
 - b. If Duke used a “average hourly LOLH by season” rather than an 8760 LOLH profile, please provide both the average hourly LOLH by seasonal data and the underlying 8760 LOLH profile.
 - i. Please state why Duke considers the use of “average hourly LOLH by season” to be a more appropriate profile than a “full 8760 LOLH” profile.
 - c. Were these Seasonal Allocations based upon the analysis performed in the Solar Capacity Value study conducted by Astrapé Consulting and described in the Companies’ 2018 IRPs? If not, please describe the basis for these Seasonal Allocations.
3. Please provide the hourly LOLE and/or LOLH information Duke utilized to determine capacity payment eligibility.
 - a. In addition, please provide the cumulative solar capacity for DEC and DEP that was included in the model simulation that generated the LOLE and LOLH tables requested.

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4. With respect to the statement on page 16 of Mr. Snider's Direct Testimony that "The Companies' projection of their respective first years of avoidable capacity need are consistent with the Companies' upcoming 2019 IRP Update filings":
 - a. Please indicate the portions of the 2019 IRP Update used to determine the Companies' avoidable capacity need.
5. With respect to the statement on pages 13-15 of Mr. Snider's Direct Testimony that the "The peaker methodology credits avoided capacity value to the QF based on the utilities' cost to construct a simple-cycle CT... Data from the Energy Information Administration ('EIA') was used as the basis for developing the CT capital cost... the Companies adjusted the EIA data to reflect the economies of scale associated with...a 4-unit CT site":
 - a. Please provide the detailed EIA specifications used to develop the CT capital costs, including the technology type, fixed capital costs, economies of scale adjustments, and any other adjustments made for the South Carolina region.
 - b. Please explain whether the CT capital cost includes: 1) transmission upgrades associated with installing a new CT or 2) fixed gas transportation costs for delivering fuel to the CT.
6. Please identify all firm capacity sales that DEC and DEP have made to other load serving entities within the last 5 years, indicating the average price of firm capacity that DEC/DEP charged to these other load serving entities.
7. With respect to the statement on page 44 of Wintermantel Exhibit 2 that: "SERVM begins with a week-ahead commitment, and as the prompt hour approaches the model is allowed to make adjustments to its commitment as units fail and more certainty around load and renewable output is gained":
 - a. Please provide a detailed description of how the SERVM model performs unit commitment decisions.
 - b. Please identify all of the timesteps modeled in SERVM (e.g. week ahead, day ahead, hour ahead, etc.) during which unit commitment decisions may be changed up until the 5-minute operating timeframe.
 - c. Please identify the timestep modeled in SERVM when operating reserves are committed.
 - d. Please provide a detailed description of how DEP/DEC system operators make actual unit commitment decisions.
 - e. Please identify all of the timesteps (e.g. week ahead, day ahead, etc.) during which DEP/DEC system operators make unit commitment decisions up until the 5-minute operating timeframe.

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- f. Please identify the timestep during actual DEP/DEC operations when operating reserves are committed.
8. With respect to the statement on page 19 of Mr. Snider's Direct Testimony that "As presented in detail in the Solar Capacity Value study conducted by Astrapé Consulting and described in the Companies' 2018 IRPs, 100% of DEP's loss of load risk occurs in the winter and approximately 90% of DEC's loss of load risk occurs in the winter. Thus, DEP's filed rates in this proceeding pay all of its annual capacity value in the winter while DEC's new rates pay 90% of its annual capacity value in the winter and the remaining 10% in the summer period.":
 - a. Please provide the seasonal distribution of loss of load risk under the following assumptions:
 - i. 75% single-axis tracking PV systems, and 25% fixed tilt.
 - ii. Demand response resources available in the winter equivalent to summer values (*i.e.*, 1,031 MW for DEC and 1,015 MW for DEP).
9. Please produce data showing hour-by-hour fluctuations in MWh of solar energy delivered to each of Your systems by QF solar generators. This request is limited to QF locations where you have detailed MWh data available, collected using hourly or more granular metering. Please provide this data on a system-wide basis for each of Your systems, and indicate the number of megawatts of nameplate capacity, and the net dependable capacity of the solar facilities corresponding to each month for which this data is provided. To the extent feasible, please produce this data for the entire period from January 1, 2016 through August 14, 2019. If this would be unduly burdensome, please provide the requested data for the most recent available 12 month period.
10. Please produce in full detail all of the output from production cost modeling (including but not limited to the production cost modeling referenced in Mr. Snider's Direct Testimony) that You developed in the course of Your preparation for this proceeding.

This request includes (but is not limited to) all cost estimates or forecasts produced using production cost modeling on an hourly basis for each year You analyzed.

This request includes the total cost during each hour of the modeling period before considering the "free" block of QF power, as well as the total cost during that hour after considering the "free" block of QF power (as discussed on page 22 of Mr. Snider's Direct Testimony).

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This request also includes the marginal energy cost per MWh or per kWh that You developed by comparing these two total cost estimates, on an hourly basis over the modeling period.

To the extent feasible, please also identify and produce the portion of the total cost that can be attributed to each generating unit during each hour of each year.

11. With respect to Your use of production cost modeling, please produce the total MWh of system load assumed or forecast during each hour of each year (including the portion that is served using solar energy obtained from QFs) and the net MWh of load (total system load after considering solar energy obtained from QFs, which is served with energy from nuclear, fossil, hydro and other dispatchable units).
12. With respect to the statement on page 24 of Mr. Snider's Direct Testimony that "natural gas commodity prices represent the primary driver of the avoidable energy cost since a natural gas-fueled combined-cycle unit or combustion turbine unit is often the marginal resource":
 - a. Please demonstrate with evidence, for each year of the forecast period, how many hours of each year a natural gas generator is the marginal resource.
 - b. Please provide the exact 10-year forward market natural gas prices used to calculate the avoided energy cost rate.
13. Please produce the following inputs that You used in your production cost modeling:
 - (a) Natural gas price forecasts (delivered prices at specific generating units and Henry Hub prices);
 - (b) Delivered coal price forecasts;
 - (c) Delivered uranium price forecasts;
 - (d) Delivered oil price forecasts;
 - (e) Per ton costs of emission allowances for NO_x, SO₂, mercury, and CO₂; and
 - (f) Per ton costs for emission control reagents such as ammonia and limestone.

REQUESTS FOR PRODUCTION

1. Please produce copies of all data requests, requests for production, interrogatories, or other communications that have been received by Duke in connection with this docket. Please produce these as soon as practicable after they are received. Please consider this an ongoing request.
2. Please produce copies of Duke's responses to all data requests, requests for production, interrogatories, or any other information provided by Duke in connection with this docket. This includes all documents, electronic files or other attachments that were provided, or made available for on-site inspection. Please produce these at the same time they are provided to the requesting party, or if that is impossible, as soon as practical thereafter. Please consider this an ongoing request.
3. Please produce copies of all data requests, requests for production, interrogatories, or any other request for information that Duke has served on other parties in connection with this docket. Please produce these at the same time they are served on the other party. Please consider this an ongoing request.
4. Please produce copies of the responses to all data requests, requests for production, interrogatories, or any other request for information that Duke has served on other parties in connection with this docket. Please produce these as soon as practicable after they are received. Please consider this an ongoing request.
5. With regard to the work performed by Astrape Consulting, referenced on page 14 of Your Initial Filing, please produce a complete copy of all work product provided to You by Astrape Consulting. This request includes (but is not limited to) any emails, memos, progress reports, preliminary results, or other documents provided to you by Astrape Consulting that explain, discuss, or summarize their work effort or the results of their work.
6. With respect to the "quotes for ten-year natural gas forward prices" referenced on page 26 of Mr. Snider's Direct Testimony, please produce all documents related to these quotes. This request includes (but is not limited to) any documents containing the name of the brokerage firm, or the dates, volumes, prices, or other relevant details concerning these requests.

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7. With respect to the “ten-year forward gas positions” purchased by You, as referenced on page 26 of Mr. Snider’s Direct Testimony, please produce all documents related to these purchases. This request includes (but is not limited to) any documents containing the name of the brokerage firm, or the dates, volumes, prices, or other relevant details concerning these purchases.
8. With respect to Dr. Wintermantel’s Direct Testimony and the Astrape Consulting study referenced therein:
 - a. Please produce the complete results and all documentation related to any sensitivity analysis conducted by Astrape consulting and/or Dr. Wintermantel, including but not limited to such analyses conducted in preparation for this proceeding, as well as such analyses conducted for purposes of the 2018 North Carolina Utilities Commission avoided cost proceeding, docket no. E-100 Sub 158.

NELSON MULLINS RILEY & SCARBOROUGH LLP

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August 19, 2019
Columbia, South Carolina

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 Methodologies, Form Contract)
 Power Purchase Agreements,)
 Commitment to Sell Forms,)
 and Any Other Terms or)
 Conditions Necessary)
 (Includes Small Power Producers)
 as Defined in 16 United States)
 Code 796, as Amended))

CERTIFICATE OF SERVICE

This is to certify that I have caused to be served this day one copy of **SCSBA's SECOND INTERROGATORIES AND REQUESTS FOR PRODUCTION** to the persons named below at the addresses set forth via electronic mail:

Alexander W. Knowles Office of Regulatory Staff Email: aknowles@ors.sc.gov	Andrew M. Bateman Office of Regulatory Staff Email: abateman@ors.sc.gov
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s/ Jeremy C. Hodges

Jeremy C. Hodges

Columbia, SC

August 19, 2019